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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,561	04/14/2004	Randall J. Calistri-Yeh	55653-015	4812
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McDermott, Will & Emery 600 13th Street, N.W. Washington, DC 20005-3096				
EXAMINER PANNALA, SATHYANARAYA R				
ART UNIT		PAPER NUMBER		
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DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/823,561	Applicant(s) CALISTRI-YEH ET AL.	
	Examiner Sathyanarayan Pannala	Art Unit 2164	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-40, 62, 68 and 72-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-40, 62, 68 and 72-74 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/14/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Application No. 10/823561 filed on 4/14/2004 has been examined. In this Office Action, claims 29-40, 62, 68, 72-74 are pending.

Priority

2. Applicant is claiming the benefit of priority under 35 U.S.C. 119(e) since a U.S. Divisional Application No. 09/562,916 is filed on 5/2/2000. So, the examiner honors the priority as per statutory law.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. § 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 29-40, 62, 68, 72-74 are rejected under 35 U.S.C. § 101, because none of the claims are directed to statutory subject matter. Independent claims 29, 62 and 68 deals with simple mathematical abstract ideas. A claim that recites a computer that solely calculates a mathematical formula or a computer disk that solely stores a mathematical formula is not directed to the type of subject matter eligible for patent protection. See Diehr, 450 US at 186 and Gottschalk v. Benson, 409 U.S. 63, 71-72 (1972).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 29-40, 62, 68, 72-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradford (US Patent 6,954,750) hereinafter Bradford, and in view of Dailey et al. (US Patent 6,917,952) hereinafter Dailey.

7. As per independent claims 29, 62 and 68, Bradford teaches a document retrieval system receives information regarding the relevancy of documents retrieved in response to a current query and the candidate query is applied the document collection (col. 4, lines 22-24 and lines 30-32). Bradford teaches the claimed, constructing a

trainable semantic vector for each data point from the dataset in a multi-dimensional semantic space (Fig. 6, col. 6, lines 33-35 and col. 11, lines 57-58).

Bradford does not explicitly teach applying a clustering process to the constructed trainable semantic vectors. However, Dailey teaches the claimed, applying a clustering process to the constructed trainable semantic vectors to identify similarities between groups of data points within the dataset (Fig. 1-4, col. 5, lines 25-32). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combined the teachings of the cited references because Dailey's teachings would have allowed Bradford's method provides a predicative model that has been trained to assess compatibility between data objects of type X and data objects of type Y (col. 3, lines 61-63).

8. As per dependent claim 30, Bradford teaches the claimed, the data points correspond to documents (Fig. 9, col. 12, lines 38-39).

9. As per dependent claim 31, Bradford teaches the claimed, the step of applying a clustering process comprises the steps: randomly distributing the data points among a predetermined number of clusters, determining a cluster center for each cluster, re-distributing the data points based on the determined cluster centers, measuring an amount of change in each cluster and repeating the steps of determining, re-distributing, and measuring until a predetermined convergence factor has been reached (Fig. 6, 9, col. 7, lines 3-4; col. 12, lines 14-32).

10. As per dependent claim 32, Bradford teaches the claimed, the step of randomly distributing comprises a step of randomly assigning a fuzzy membership function to each data point and the step of re-distributing comprises the step of recalculating the fuzzy membership function for each data point (Fig. 6, col. 6, lines 30-33).

11. As per dependent claim 33, Bradford teaches the claimed, the step of making final cluster assignments based on the fuzzy membership functions (Fig. 10, col. 14, lines 51-54).

12. As per dependent claim 34, Bradford teaches the claimed, each data point is assigned to zero or more clusters (col. 16, line 66 to col. 17, line 2).

13. As per dependent claim 35, Bradford teaches the claimed, the step of randomly distributing comprises a step of randomly distributing an equal number of data points to each of the predetermined number of clusters (Fig. 8-9, col. 12, lines 12-19).

14. As per dependent claim 36, Bradford teaches the claimed, the predetermined convergence factor is equal to about 0.0001 (col. 15, lines 5-7).

15. As per dependent claim 37, Bradford teaches the claimed, the predetermined number of clusters is automatically determined based on the size of the dataset (col. 15, lines 5-7).

16. As per dependent claim 38, Bradford teaches the claimed, the predetermined number of clusters is input by a user (col. 9, lines 58-59).

17. As per dependent claim 39, Bradford teaches the claimed, the step of determining a cluster center comprises a step of constructing an average trainable semantic vector representative of an average value of all datasets within the cluster across all dimensions of the semantic space (Fig. 9, col. 12, lines 40-46).

18. As per dependent claim 40, Bradford teaches the claimed, the step of re-distributing comprises a step of assigning the data points to clusters based on the distance from a data point to the nearest cluster center (col. 7, lines 3-7).

19. As per dependent claims 72-74, wherein the step of constructing a trainable semantic vector for each data point comprises the steps of: constructing a table for storing information indicative of a relationship between each data point and predetermined categories corresponding to dimensions in the semantic space, determining the significance of each data point with respect to the predetermined categories and constructing a trainable semantic vector for each data point, wherein

each trainable semantic vector has dimensions equal to the number of predetermined categories and represents the relative strength of its corresponding data point with respect to each of the predetermined categories (Fig. 1, col. 6, lines 8-12 and col. 7, lines 58-64).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (571) 272-4115. The examiner can normally be reached on 8:00 am - 5:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Sathyanarayan Pannala
Examiner
Art Unit 2164

srp
July 4, 2006